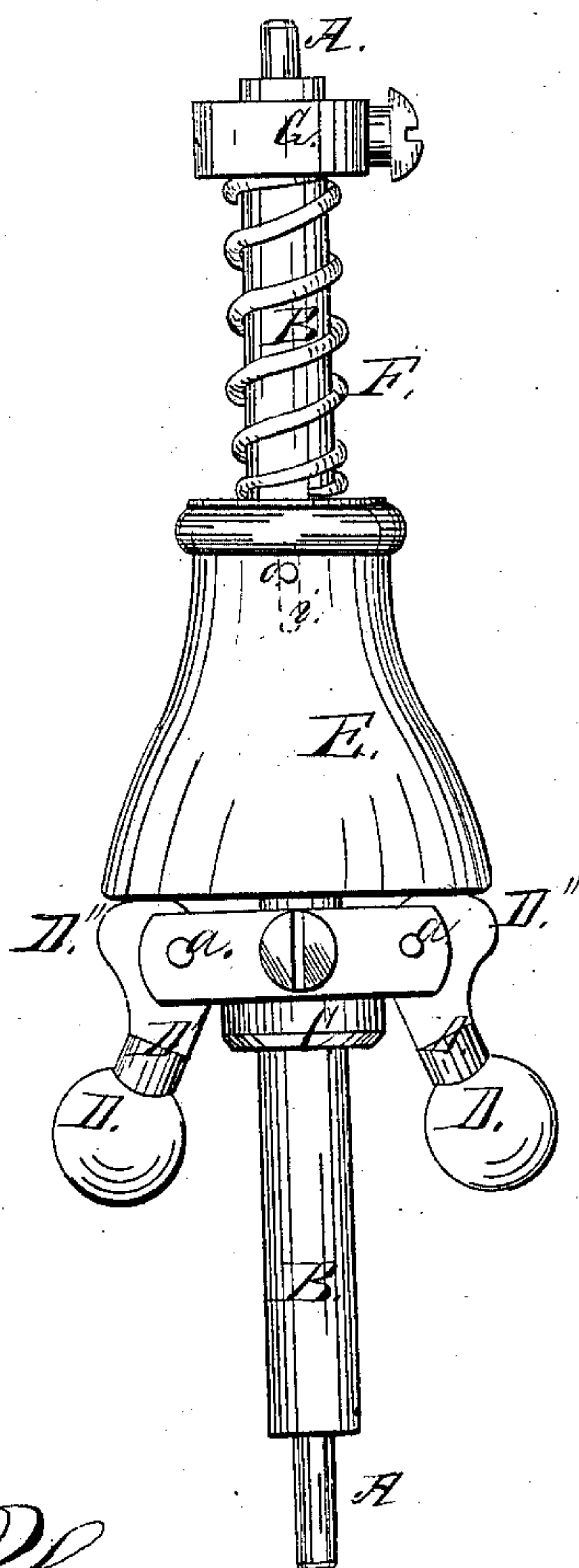


W. Nichols.

Governor.

N^o 57,953.

Patented Sep. 11, 1866.



Witnesses:

A. A. Seaton
Andrew Patterson

Inventor.

Wm. Nichols
by Atty.
J. C. Clayton

UNITED STATES PATENT OFFICE.

WILLIAM NICHOLS, OF ELMIRA, NEW YORK.

IMPROVEMENT IN STEAM-ENGINE GOVERNORS.

Specification forming part of Letters Patent No. 57,953, dated September 11, 1866.

To all whom it may concern:

Be it known that I, WILLIAM NICHOLS, of Elmira, in the county of Chemung, and in the State of New York, have invented a new and useful Governor for Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming a part of this specification.

The drawing is a view in elevation showing my improved governor.

My invention consists in the new and useful mode of constructing a governor hereinafter described.

In the drawing, A shows the valve-rod, and B the hollow shaft in which the valve-rod plays up and down. C is a collar, with short lateral arms, and is fastened to the hollow-shaft B. D are the two governor-balls, having extending upward from them short arms D' of a length about equal to the diameter of the balls. The two arms D' are pivoted at a to the collar-arms C.

The upper ends of the arms D' are made into the shape of cams D², so as to raise the weight-ball E in proportion to the divergence of the governor-balls.

E is the weight-ball, which rests upon the heels of cams D². This weight-ball is perforated by a pin, o, passing through a slot, i, in the hollow shaft and through the valve-rod, so that the weight shall be fast to the valve-rod, and yet be capable of sliding up and down upon the hollow shaft through a space equal to the length of slot i, which is equal to the vertical play of the valve.

F is a spiral spring around the upper part of hollow shaft, and presses against the collar G and the weight-ball E, so as to assist in overcoming its inertia and force it to act instantaneously.

It would be practicable to use a stronger spring and a weight-ball made in the form of a mere disk for the spring to act upon, but I prefer the construction shown in the drawing.

The operation of my invention is evident. The divergence of the governor-balls D is in proportion to their speed, (which I prefer to have at about four hundred revolutions per minute,) and the degree of lift imparted to the weight-ball and the valve-rod by the cams D² is proportionate to the divergence of the governor-balls. As the balls D diverge they bring the cams D² to operate gradually against the under side of weight-ball E, raising it more or less, the greatest raise or lift being when the points of the cam are in contact with the weight-ball, which occurs when the governor-balls are at their greatest divergence. As the speed slackens the balls approach, and the weight-ball descends so as to force the valve-rod downward.

Perfection and sensitiveness of operation and cheapness of construction over governors known to me are claimed as advantages of my invention.

I am aware that a patent has been granted in which a weight-ball (for operating the inner ends of the bent levers supporting the governor-balls) is fastened to a spindle playing up and down in a hollow shaft, and that a spiral spring has been used in combination with such a weight-ball; I therefore, in this specification, disclaim any title to said devices, or any other claimed in said patent, and limit my claim to what is new in this application.

What I claim as my invention, and desire to secure by Letters Patent, is—

The arrangement, substantially as described, of the balls D, arms D', cams D², and weight E, for the purpose set forth.

In testimony that I claim the above-described invention I have hereunto signed my name this 17th day of August, 1866.

WM. NICHOLS.

Witnesses:

EDM. F. BROWN,
JO. C. CLAYTON.